

**To:** CN=Steve Vandegrift/OU=ADA/O=USEPA/C=US@EPA[]  
**Cc:** []  
**From:** CN=Steve Markham/OU=ADA/O=USEPA/C=US  
**Sent:** Wed 7/18/2012 2:13:58 PM  
**Subject:** Re: 9ME831GN, QA questions concerning microwave digestion for total metals for Category 1 projects  
[MARS5 Specifications.DOC](#)  
[MW Service Record 031511.pdf](#)  
[MW Cert. of Calibration](#)

These are the specifications I received from CEM. It still doesn't state a feedback time, but according to the CEM representative it's because the feedback is in fractions of a second and is only limited by the speed of the computer.

Attached is the original Certificate of Calibration for the microwave in 2009. Also the service record from 2011 is attached which states they did do pressure and temperature calibration. We were suppose to get a Certificate of Calibration, but if we did I can't find it. CEM is contacting the service technician to send me the certificate and I will forward to you as soon as soon as I get it.

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**From:** Steve Vandegrift/ADA/USEPA/US  
**To:** Steve Markham/ADA/USEPA/US@EPA  
**Cc:** ADA Shaw Management@EPA, Holly Ferguson/CI/USEPA/US@EPA  
**Date:** 07/18/2012 08:04 AM  
**Subject:** Re: 9ME831GN, QA questions concerning microwave digestion for total metals for Category 1 projects

Yes, please provide the original temp calib. Hopefully they can provide it for last year too.

You will be receiving another TD today which states:

"We need copies of all the temperature and pressure plots for all digestion's using the Microwave that have been performed for all Hydraulic Fracturing Case Studies and for Pavillion"

Please provide the plots for the Pavillion samples you did this spring ASAP.

We need to adhere to 3015A, so if these items you suggest to purchase will provide for that, then Shaw should determine that through appropriate channels.

Steve Vandegrift, QA Manager  
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From: Steve Markham/ADA/USEPA/US  
To: Steve Vandegrift/ADA/USEPA/US@EPA  
Cc: ADA Shaw Management@EPA, Holly Ferguson/CI/USEPA/US@EPA  
Date: 07/18/2012 07:38 AM  
Subject: Re: 9ME831GN, QA questions concerning microwave digestion for total metals for Category 1 projects

There is a manual, but no documentation on feedback time. I will call them to see if they have it. Believe it's 1 sec., but will call to see if I can confirm and get some specs. that document it.

I have the original paperwork from the install in 2009 that does have temperature calibration. Do you want this? They were here in 2011 and I will call to see if I can obtain a service record.

If we are going to continue to do Category 1 samples there are two things I would suggest we purchase. One is the IR sensor calibration kit so we can calibrate and document temperature calibration. The other is a software program that would be loaded on an external computer and would allow monitoring the temperature of all vessels, plus we could save the data from each batch.

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To: Steve Markham/ADA/USEPA/US@EPA  
Cc: ADA Shaw Management@EPA, Holly Ferguson/CI/USEPA/US@EPA  
Date: 07/17/2012 04:57 PM  
Subject: Re: 9ME831GN, QA questions concerning microwave digestion for total metals for Category 1 projects

Steve-

Is there a manual? Is there documentation to indicate it meets 3015A requirements for feedback to adjust power?

The microwave has no date for temp calibration. Is there other documentation to show it was calibrated for temp? Can you get the company to provide it?

sv

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From: Steve Markham/ADA/USEPA/US  
To: Steve Vandegrift/ADA/USEPA/US@EPA  
Cc: ADA Shaw Management@EPA, Holly Ferguson/CI/USEPA/US@EPA  
Date: 07/17/2012 03:41 PM  
Subject: 9ME831GN, QA questions concerning microwave digestion for total metals for Category 1 projects

[attachment "Microwave History.pdf" deleted by Steve Markham/ADA/USEPA/US] [attachment "QA questions concerning microwave digestion..docx" deleted by Steve Markham/ADA/USEPA/US]

Sorry it's in a rough form. I will try and spruce it up when we submit the rest of the documentation tomorrow.

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